VOLCANIC DISASTERS THAT HAVE DEVASTATED OLD WORLD ISLANDS AND CITIES.

How the Lisbon Earthquake of 1755 Razed Portugal's Capital in Ruins—A Wave Like the Even Swell of the Atlantic Crossed the City.

WRITTEN FOR THE SUNDAY REPUBLIC.

As the days pass and the reports still come in from the volcanoes on the islands of Martinique and St. Vincent continue to belch lava, fire and steam, it becomes apparent that the first rough estimates of the loss of life are the opposite of exaggerated, and that this Caribbean Sea disaster will be recorded as among the most terrible in the annals of the civilized world.

From all that can be gathered, the destruction of St. Pierre was like the blotting out of Pompeii and Herculaneum. The latter catastrophe, however, dates back to the very beginning of the Christian era. The surest impression of the horrors of Vesuvius, as the most awful disaster of the kind known to history, exists in the minds of the citizens of to-day. Bulwer Lytton's imagined description based on the report by Pliny, the Younger, in "The Last Days of Pompeii," is the only lengthy account which many persons have read. Later excavations have drawn attention to the terrifying event, but more recent and equally terrific eruptions and upheavals, if not so death-dealing, are probably the most vivid at this time, because magazine and newspaper, in addition to history, have storied them.

The partly submarine eruption of the Krakatoa volcano in the Indian Ocean only fifteen years ago, as the result of which more than 36,000 persons perished, is the most generally known of all the volcanic disturbances.

The Lisbon disaster of 1755, as an earthquake, causing a loss of life variously estimated from 25,000 to 75,000, is more familiar since it comes within modern times and involved a European capital.

The obliteration of St. Pierre is a parallel for the entombment of Pompeii, because the population in each case were either buried under molten lava, were suffocated by sulphurous gases or died of the intense heat. Great tidal waves, resulting from submarine explosions of immeasurable power, or from the splash occasioned by entire sections of the island, millions of cubic yards in bulk, being hurled into the ocean, brought about the enormous list of fatalities at Krakatoa. The population of Lisbon were crushed beneath their homes, their cathedrals, churches and palaces, as well as drowned by tidal waves, and burned in the fire which followed the downfall of the city.

Lisbon Was a Flourishing City in the Eighteenth Century.

In the latter half of the Eighteenth Century Lisbon was a flourishing city, rich in architecture, rich in worldly goods, and the capital of a growing Power; for Portugal had reaped great profits from the discovery of the new world, and the wealth which it contained. The nation was still aggressive and expanding.

There was little or no warning of the devastation to come. On the evening of October 31, 1755, the earth trembled slightly and there were heard rumblings, which seemed to originate deep down in the bowels of the earth. Such slight subterranean disturbances were not unknown at Lisbon. Occasionally serious consequences had followed, but nothing to afford the faintest suggestion of the great earth waves which were to tumble the city down, so that "not one stone should stand upon another."

The morning of November 1 dawned clear and bright. It was All Saints' Day, a Roman Catholic festival. The churches and the magnificent Lisbon Cathedral were crowded with worshipers. The streets were crowded with pedestrians, and everybody was looking forward to a day of enjoyment.

It was about 9:45 a. m. There came a sudden sound as of innumerable thunder crashes. It came from below, and the sky was still unclouded. A wave like the even swell of the Atlantic, with incredible rapidity and with a vertical displacement of eight feet, was crossing the dry land. The force, probably the result of tremendous compression of gases, necessary thus to shift the ground is inconceivable.

Pope in Temples Saw Pillars Shake Like Reeds.

The people in the temples, looking up, saw great pillars shake like reeds, saw arches collapse, heard breaking windows, saw walls totter and roofs parted. They rushed panic-stricken toward the entrances, only to meet another frantic mob seeking sanctuary in the places of worship. Lisbon was enveloped in dust, caused by the fallen debris of the first shock, but there came a second, more severe than the first; and a third, not so tremendous, but enough to level any stancher structure which had withstood the first two. Portugal's capital was in ruins and a large proportion of its populace were buried. It was illustrative of Byron's line:

"A thousand years scarce serve to build a city; an hour may suffice to lay in the dust."

Those who were in their homes suffered the fate of those in the churches. Those in the strets were luckiest, and those who chanced to be in carriages were luckiest of all. But the disaster was not complete. Many who had survived the fall of the buildings rushed toward the sea for safety, and out upon a new marble quay, which had just been completed at a large cost.

Following the earthquake came a tidal wave 50 feet in height. It fell upon the low-lying section of the town, submerged the quay and the wharves, and in subsiding carried out to ocean thousands of the city's one time inhabitants. Strangest feature of the whole occurrence was that, when the waters had retreated, there was left no trace of the quay. The earth had literally swallowed it up and the water had closed over it and the human freight which it had borne.

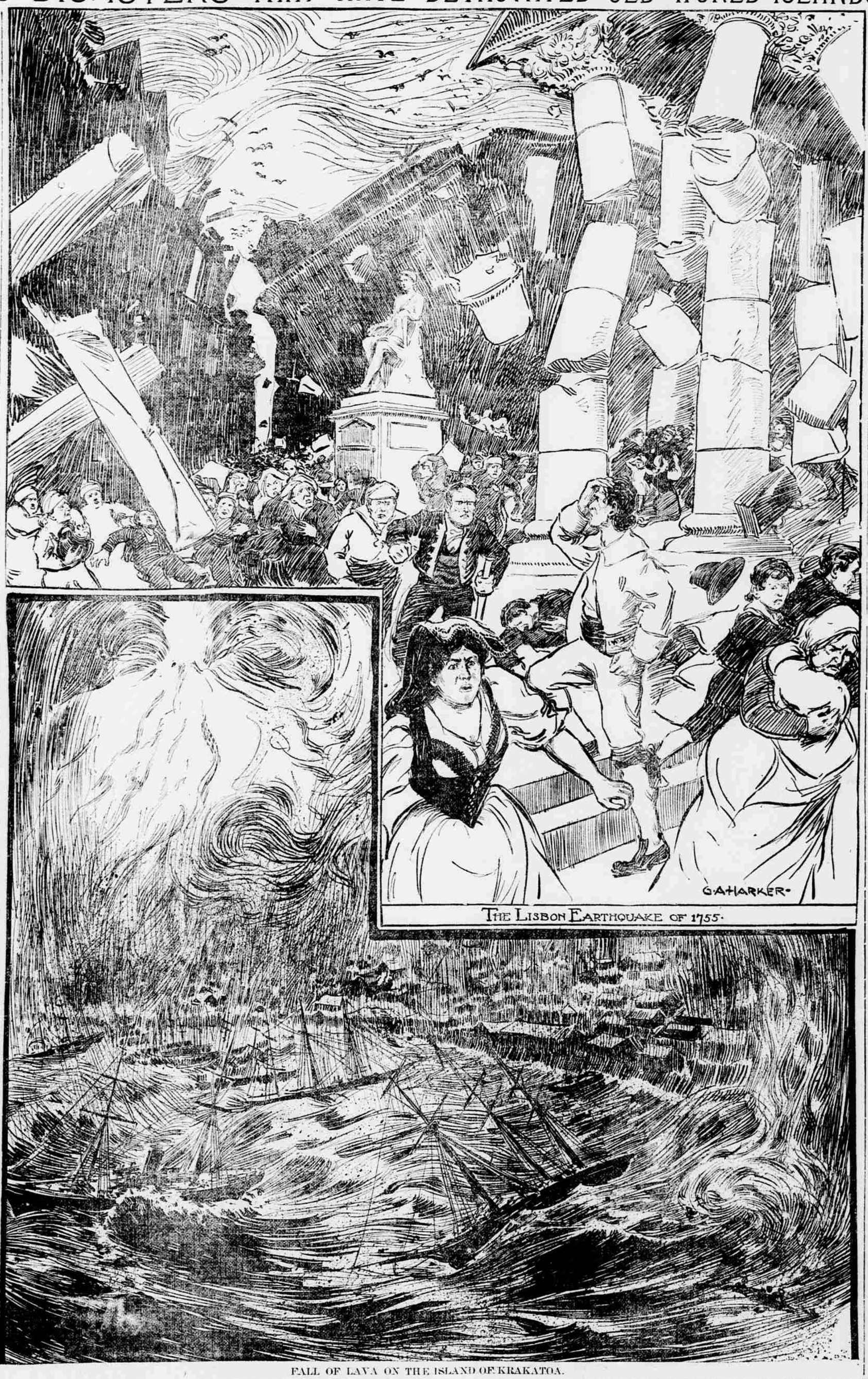
Fire was next to be contended with. Flames broke forth from the ruins simultaneously in a thousand places. They swept over the entire central section of the city completing the destruction of the best buildings. Joseph I was then the King and was an efficient ruler. It happened, that, when the earthquake occurred, he was at a suburban residence, and escaped uninjured. He inaugurated movements to rescue his people, to prevent a famine and pestilence, and to encourage rebuilding. He succeeded and in ten years Lisbon was once more one of the most beautiful cities of Southern Europe.

Former Earthquake Described by an Eye Witness

One of the most vivid descriptions of Lisbon during the earthquake was published in 1880 in Blackwood's Magazine. It was in the form of a letter from a man named Chase, who was in Lisbon at the time, who was injured, and narrowly escaped death. The following portrays the first shock:

"I was alone in my bed-chamber, four stories from the ground opening a bureau, when a shaking or trembling of the earth (which I knew immediately to be an earthquake), gentle at first, but gradually becoming violent, alarmed me. Turning round to look at the window the glass seemed falling out. Calling to mind the miserable fate of Callao in the West Indies, I dreaded a like catastrophe; and remembering that our house was so old and weak that any heavy passing carriage made it shake throughout, I ran directly into the Arada, to see if the neighboring houses were agitated with the same violence. This place was a single room at the top of the house, with windows all around the roof, and supported by tall pillars. It was only one story higher than my chamber, but commanded a prospect of some part of the river, and of all the lower part of the city, from the King's Palace up to the Castle. I was no sooner up the stair than the most horrid prospect the imagination could picture appeared before my eyes. The house began to heave to that degree, that, to prevent being thrown, I was obliged to put my arm out of the window and support myself by the wall. Every stone in the wall, separating and grinding against each other, caused the most fearful jumbling of noises ears ever heard. The adjoining wall of a room next to where I was, fell first; then followed all the upper part of the house, and of every other as far as I could see toward the Castle, when turning my eyes quick to the front of the room (for I thought the whole city was sinking into the earth), I saw the tops of two or more pillars meet, and saw no more."

The writer of the above awakened in the basement of the house in which he had lived. Cut in a score of places, with an arm broken and shoulder dislocated, he managed to find an exit. Then he graphically tells of the burning of the city and the rush of the people to the surrounding country.



THE LISBON EARTHQUAKE OF 1755.

FALL OF LAVA ON THE ISLAND OF KRAKATOA.

Destruction of Krakatoa Was Like That of Martinique and St. Pierre—Rain of Lava and Ashes Fell for Three Days—The Survivors Sought the Jungles.

Eruption on Island of Krakatoa in 1883.

The eruption on the Island of Krakatoa in 1883 was fully observed at the time by students of volcanic action, and the phenomena attending it carefully noted.

The island for two centuries had been uninhabited. It was about five miles long and three wide. There were two volcanic peaks, or cones, of which the highest rose up 2,750 feet. Surrounding the island were other and smaller cones, protruding above the surface of the ocean. Experts unite in the opinion that none of the cones were craters, but that all were lava spurs upon the edge of one vast crater, the greater part of which was submerged.

In 1680, 200 years before the recent outbreak, the island was fertile and inhabited. At that time came a terrific eruption, which changed the appearance of all ground above water and annihilated the natives. When this was ended, the volcano rested and was thought to be extinct.

In the month of May, 1883, came the first warnings that Krakatoa was to once again open up with its subterranean and submarine artillery. The spurs above water, in size, were as nothing to the hundreds of other towering mountains of the Indian Ocean, but the crater yielded to none in respect to its hidden power. In May were explosions causing noises which were heard in Batavia, eighty miles away. These continued with uninterrupted vigor for eight or nine weeks. Masses of pumice stone and ashes were vomited into the air, which were carried by the wind as far as the Island of Timor, 1,200 miles away.

In August came the culmination. It is supposed that the continued minor explosions had opened a wide vent in the crater and that the waters had rushed in only to be converted into steam, which, expanding, demanded an exit. Krakatoa was in paroxysms, and now its voice was heard 2,000 miles away in Australia and 2,267 miles away, at the Chagos Islands. The nights were pitch dark, save for the electric flames at the volcano's mouth, which shed a lurid, fitful terrifying light.

Fall of Lava and Ashes Continued Three Days.

About noon of August 26 came Krakatoa's last mighty effort, and the detonations, the discharges of molten stone, steam and ashes continued for three days. The explosions augmented in intensity, and by 10 o'clock on the night of the 26th the entire Strait of Sunda, between the islands of Sumatra and Java, in the center of which lay the mighty crater, was rendered inky dark by the ascending masses of smoke. The sounds were deafening in Java as far as Batavia, and over a large portion of Sumatra.

In the morning the explosions ceased for a short period. The inhabitants of neighboring towns in Java, Buitenzorg, Serang, Anjer and Merak, sought to get a little sleep. But at 7 o'clock came a crash so formidable that all were startled from their beds. Normally it should now be daylight, but the sun's rays could not pierce the dense overhanging canopy. Lamps were used in the houses.

There was no interruption of the seismic artillery during that day, nor during the next day. Krakatoa's bottled up energy seemed inexhaustible. The terror of the simple-minded natives of Java and Sumatra was indescribable. They cowered in their huts or sought the fastnesses of the jungle, praying hysterically to their multifarious gods.

The reports of sea captains who ventured near the Strait of Sunda and escaped to tell the tale—few did—are graphic in the extreme. Captain Watson of the English ship Charles Bal was ten miles south of the volcano on the 26th. He described the island as shrouded in a dense, black cloud, which slowly spread out until it obscured the blue vault of the heavens. Aside from the thunderous explosions, he speaks of crackling noises, which are ascribed to the contact of great rocks ascending and descending in the atmosphere. He tells of a rain of pumice in large pieces, quite warm, which fell a foot deep upon the ship. He remained near the scene until 5 o'clock in the afternoon, when he dared to do so no longer.

Another captain describes the electrical display which accompanied the eruption. On the afternoon of the 26th, from a distance of forty miles, he speaks of great vaper clouds being lighted up by bursts of forked lightning, which seemed like "large fiery serpents, rushing through the air." After dark, he reports that the great upsoaring, overarching mantle appeared like a blood-red curtain, with edges of all shades of yellow, the whole of a murky tinge, through which gleamed fierce flashes of lightning.

Students of such eruptions—cablegrams from Martinique tell of similar phenomena being observed—state that this generation of atmospheric electricity invariably accompanies volcanic disturbances on a large scale. Steam jets rushing through the orifices of the earth's surface constitute an enormous hydro-electrical engine. Ejected materials striking against each other produce the friction necessary to strike "sparks"—sparks as large in proportion as a cliff of 100 cubic feet is to the flint-pebble from which a lad strikes fire with his penknife.

ASSESSMENT OF THE CITY'S REVENUE: BY JOHN J. O'BRIEN, PRESIDENT BOARD OF ASSESSORS.

WRITTEN FOR THE SUNDAY REPUBLIC.

A great municipality is a large corporation, in which every citizen is a stockholder. The poor man has equal electoral rights with the millionaire, for the municipality is a local government of the people, deriving its charter from the popular government of the State, and in the organization and management of the municipal corporation the majority dictum prevails.

Since the people rule the municipality, each citizen reaping personal advantages from the local government, it devolves upon the people to maintain the corporation. Law and progress are the results of family and community interests. For the blessings conferred upon every individual and his family and property, the citizen is under personal obligations to the government. Judged by the proper standard, the privilege of voting is really a duty. On the principle that the will and interests of the majority of the people are supreme, no citizen or minority of citizens can rebel against sustaining the corporation that affords protection and the favors of progressive civilization to all.

Taxation is the method by which the municipality is maintained. It is the method by which sufficient revenue is acquired to operate the corporation—the method of assessing the stockholders for funds to meet the financial obligations of their company. Whether a resident does or does not accept the privilege of asserting his preference at an election in favor of a certain party, pledged to specific policies for directing the municipality, he is, nevertheless, a stockholder, and is bound to aid in supporting the corporation, for the reason that he receives the same benefits as the qualified voter.

Term Assessment Means Equalization of Taxation.

The term assessment of the revenue is equivalent to equalization of taxation in the application of the law. If the terms are not synonymous they should be. In spirit, the law proposes that every citizen shall assist, according to his means and in proportion to his ownings, in maintaining the city. The city affords certain benefits to the public. Equalization in the fundamental principle of taxation, as it is of American government. The man of wealth has more possessions than the poor man, and consequently has greater demands on the municipality, though, from the standpoint of citizenship, they are equal. The rich man and the private corporation must pay more taxes, therefore, than the man of less wealth.

Public-utility franchises are granted chiefly for the accommodation of the public. The profit that the city may acquire is not of paramount importance. It is secondary to the public utility of the project. The profit that may accrue to the recipient of the franchise concerns the city only in so far as the city is entitled to a certain percentage of the earnings. When compensation for a franchise is not made a part of the franchise the value of the franchise becomes an object of taxation.

Taxation of enterprise is not a good policy. While franchises of quasi-public corporations should be taxed at the same rate and percentage as real and personal property, it is not wise to impose unnecessary taxation on mercantile ventures. The taxation of enterprise is a public burden. Enterprise means employment and progress, and the taxation of enterprise means the retardation of progress.

Rate Based on Aggregate Value of Property.

As the object of taxation is to get money for the people's corporation, taxes are assessed at a rate that will bring adequate revenue. The rate is based on the aggregate value of all property, and so that taxation may not be a hardship on any stockholder, his property is not taxed at its actual value, but at a safe percentage, which is allowed in view of possible retrogression.

The assessment of the revenue entails a vast amount of work. First of all, the rate and percentages of taxation are fixed by the voters and the legislative bodies of the State and city. The percentages of the revenue define how much of the income shall go to the city and how much to the schools.

The ten district assessors start their new canvass on June 1. Armed with books containing plats of all the blocks in his district the assessor goes from house to house and etimates values of real and personal property. The president of the board has jurisdiction over every district and assists in the canvass. In fact, the very first movement in the new canvass is made by the president and the district assessors.

June 1 lists of all new buildings in the city are given to the president by the assessors. The president then goes from district to district, and with the district assessor fixes the values of the completed portions of unfinished buildings. From June 1 until January 1, each assessor remains in the field, inspecting property and establishing values. While the canvassing is in progress the president goes into the different districts and supervises the work of the assessors.

January 1 the district assessors tender to the president their plats of property values. Each assessor attests before the Circuit Court or City Register to the correctness of his assessments. From the plats the values are rendered by the clerks in the president's office in fifty assessment books, in which the names of all property owners are arranged alphabetically. The transfers are then compared.

From these books fifty tax books are written, accurately describing the property and specifying in respective columns the division of the different taxes. Tax bills are drafted from these books, and from the bills fifty abstract books are prepared. About August 15 the tax books, tax bills and abstract books are transmitted to the Comptroller, who has them compared. The Comptroller retains the original tax books, but gives the tax bills and abstract books, about September 1, to the Collector of Revenue, whose clerks again compare the books and bills, after which collections begin.

Franchise values are assessed by the president, subject to change by the Board of Equalization. This year franchises were assessed for the first time. My idea was to assess franchises on a basis of 65 per cent of their actual value, and the lists were submitted to the Board of Equalization on that basis. The board, however, decreased the percentage to 16¼ per cent of the actual value. The Board of Equalization has full power in equalizing all assessments. In my experience I have found that the people view taxation as a sacred duty. Seldom it is that any vigorous objection is made. So long as the taxpayers are assured that public money will not be wasted, they are satisfied. I have also found that they do not object to an increase in the rate of taxation when convinced that the revenue will be expended judiciously for the public good.